10. (Amended) The measuring system according to claim 9, wherein said sensor element is connected to said measuring and control unit via an optical connection, characterized by said stored information including pre-defined correction data concerning the relationship between the measured reference signal and the measured measuring signal as a function of the bending influence upon said optical connection.

A1 concl.

11. (Amended) The measuring system according to claim 9, characterized by said reference signal and said measuring signal being of the same wavelength.

REMARKS

The above changes to the claims have been made to delete multiple dependency of the claims, to round out the scope of patent protection being sought, and generally to place the claims in better condition for examination on the merits.

Respectfully submitted,

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Attachment to Preliminary Amendment dated December 18, 2001

Marked-up claims 1 - 11

1. (Amended) A method for bending compensation in intensity-based optical measuring systems, comprising a sensor element [(8)] connected to a measuring and control unit [(16)] via an optical connection [(4)] and being adapted for providing a signal corresponding to a measurement of a physical parameter in connection with the sensor element [(8)], said method comprising

generation of a measuring signal [(λ_1)] that is brought to come in towards the sensor element [(8)],

generation of a reference signal [(λ_2)] that is transmitted through the optical connection [(4)] without being influenced in the sensor element [(8)], said measuring signal and said reference signal having different wavelengths,

detection of said measuring signal [(λ_1)] and

detection of said reference signal [(λ_2)],

[characterised] characterized by comprising bending compensation through correction data based upon pre-stored data concerning the relationship between the measured reference signal [(λ_2)] and the measured measuring signal [(λ_1)] as a function of the bending influence upon said optical connection [(4)].

2. (Amended) The method according to claim 1, [characterised] characterized by the feeding of said measuring signal [(λ_1)] to the sensor element [(8)] causing optical interference in a cavity [(8a)] associated with the sensor element [(8)].

3. (Amended) The method according to claim 1, [characterised] characterized by said correction data consisting of a stored table or function, describing a relationship measured beforehand, between the reference signal [(λ_2)] and the measuring signal [(λ_1)], as a function of the bending influence.

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Marked-up claims 1 - 11

4. (Amended) A method according to [any one of the preceding claims] claim 1, [characterised] characterized by being [utilised] utilized for pressure [(p)] measurements, said sensor element [(8)] defining a membrane [(8b)] being affected by the pressure [(p)] surrounding the sensor element [(8)].

5. (Amended) A device for measurements in optical measuring systems comprising[;]: an optical connection [(4)] connected to a sensor element [(8)] adapted for providing a signal corresponding to a measurement of a physical parameter in connection with the sensor element [(8)]; a first light source [(2)] and a second light source [(3)] arranged at the opposite end of the optical connection [(4)] and functioning to emit a first light signal [(λ_1)] and a second light signal [(λ_2)], respectively, at different wavelengths, the first light signal [(λ_1)] defining a measuring signal, brought to come in towards the sensor element [(8)], and the second light signal [(λ_2)] defining a reference signal, conveyed through the optical connection [(4)] without being influenced in the sensor element [(8)]; a first detector [(12)] intended for the detection of a light signal modulated by the sensor element [(8)]; a second detector [(13)] intended for the detection of a light signal reflected by the sensor element; and a [computerised] computerized measuring and control unit [(14)], to which said detectors [(12, 13)] are connected,

[characterised] characterized by said unit [(14)] comprising means for processing the values detected by said detectors [(12, 13)], means for storing data concerning the relationship between the measured reference signal [(λ_2)] and the measured measuring signal [(λ_1)] as a function of the bending influence upon said optical connection [(4)], and means for correcting the value detected by the first detector [(12)] in dependence of said correction data.

6. (Amended) The device according to claim 5, [characterised] characterized by said sensor element [(8)] comprising a cavity [(8a)], shaped so as to create optical interference when feeding said measuring signal [(λ_1)] into the cavity [(8a)].

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Marked-up claims 1 - 11

7. (Amended) The device according to claim 6, [characterised] characterized by said cavity [(8a)] being obtained through building up molecular silicone and/or silicone dioxide layers, and an etching procedure.

8. (Amended) The device according to claim 7, [characterised] characterized by said cavity [(8a)] being obtained through [utilising] utilizing a bonding procedure.

9. (Amended) A measuring system for measuring a physical parameter [(p)] influencing a sensor element [(8)] adapted to be connected to a measuring and control unit [(16)], [characterised] characterized by comprising a separate information-carrying unit [(18)] comprising a memory and being adapted for connection to said measuring and control unit [(16)], said information-carrying unit [(18)] being co-ordinated with the sensor element [(8)] by containing stored information regarding the properties of the measuring system and the sensor element [(8)] during measurements.

10. (Amended) The measuring system according to claim 9, wherein said sensor element [(8)] is connected to said measuring and control unit [(16)] via an optical connection [(4)], [characterised] characterized by said stored information including pre-defined correction data concerning the relationship between the measured reference signal and the measured measuring signal as a function of the bending influence upon said optical connection [(4)].

11. (Amended) The measuring system according to claim 9 [or 10], [characterised] characterized by said reference signal and said measuring signal [are] being of the same wavelength.

ABSTRACT

A2 The invention relates to a method for bending compensation in intensity-based optical measuring systems, comprising a sensor element connected to a measuring and control unit via an optical connection, and being adapted for providing a signal corresponding to a measurement of a physical parameter in connection with the sensor element, said method comprising the generation of a measuring signal that is brought to come in towards the sensor element, the generation of a reference signal that is transmitted through the optical connection without being influenced in the sensor element, said measuring signal and said reference signal having different wavelengths, the detection of said measuring signal and the detection of said reference signal. The invention is characterized by comprising bending compensation through correction data based upon pre-stored data concerning the relationship between the measured reference signal and the measured measuring signal as a function of the bending influence on said optical connection. The invention also relates to a device for carrying out said method. Through the invention, measurements with an optical pressure measuring system are allowed, which exhibit effective compensation for any bending of the optical connection.